

Compared with a Transvaal specimen this bird seems to be absolutely identical.

Fam. ALAUDIDÆ.

61. *TEPHROCORYS CINEREA*.

Tephrocorys cinerea (Gm.); Sharpe, Cat. B. Brit. Mus. xiii. p. 561.

No. 47. ♂ ad. Kikuyu, Sept. 10, 1889.

Slightly darker than South-African examples, with dusky brown ear-coverts and more rufous wings, but I think not separable from *T. cinerea*.

62. *MIRAFRA AFRICANA*.

Mirafra africana, Sharpe, Cat. B. Brit. Mus. xiii. p. 607 (1890).

No. 42. ♂ ad. Ulu, Ukambani, Jan. 3, 1889.

Although this specimen is in freshly moulted plumage and looks rather different from South-African examples, I cannot separate it specifically.

[To be continued.]

XXIV.—*Letters from Mr. J. GRAHAM KERR, Naturalist to the Pilcomayo Expedition**.

S.S. 'Bolivia,' Rio Pilcomayo.

Lat. 24° 50' S.; Long. 58° 40' W.

June 25th, 1890.

I AM afraid you will be thinking that I have vanished from the face of the earth, it is so long since I have had an opportunity of writing to you. As a canoe is being sent down the river for provisions, I take the chance of sending you a few lines, necessarily brief, as there is little time left, and I only learned quite accidentally that the canoe was to be sent off. I shall confine myself to a brief epitome of our progress so far in the Pilcomayo. We entered the river on March 12th, after having passed three most tedious months, rushing hither and thither between different parts on the Paraná.

* For previous letters see above, p. 13, and 'Ibis,' 1890, p. 350.

On passing into the Pilcomayo—this “gran rio del Norte,” as some one calls it—we found it an insignificant stream, some sixty yards in width, and with about three fathoms of water in it. The banks of the river were high and steep, clothed, however, with a protective growth of rank grass and other vegetation, and betraying no symptoms of that intense erosive activity so characteristic of its fellow stream the Bermejo. Its course is extremely tortuous, its current very slow, about a quarter of a mile per hour. This extreme tortuosity proved a great hindrance to navigation, some of the bends being extremely abrupt. The waters of the river were dark and still, reflecting in their surface the innumerable Kingfishers of all three Argentine species, which darted hither and thither. So much for the appearance of the river at its mouth.

For the first week or so we made fairly good progress, frequently, however, having to wait for the other and larger vessel, the ‘General Paz,’ which accompanied us as an escort. She experienced great difficulty in getting round the turns, owing to her length, 120 feet. At last, upon March 18th, the ‘General Paz’ was quite unable to proceed further, and so Capt. Page decided to leave her behind. So we took on board the ‘Bolivia’ the captain of the ‘General Paz,’ her doctor, and twenty-five of her soldiers, along with a couple of officers. All these additions to our number of course made us draw much more water, and also proved a great strain on the engine. So at last it was found necessary to leave the soldiers behind. They were accordingly put ashore on April 1st, except half a dozen, who remained on board to assist in cutting fuel, &c., and to supplement our very weak crew. In the nearly three months since then we have, I believe, not made fifty miles in a straight line.

I said that even at its mouth the Pilcomayo was extremely small compared with what one would expect it to be from the length of its course and the extent of its draining area. Its size has been continually diminishing, until now—some 300 miles by river from the mouth, and say one fifth of the way to the Bolivian frontier—we have a mere brook, from

10 feet to 10 yards in breadth, and in depth from 6 inches to 6 feet, a mere runlet of intensely salt water. Along this we slowly progress by building dams to let the water accumulate, repeating the operation every few miles. This is the aspect of affairs in the dry season; when the rains come it will, no doubt, be very different. So much for the river itself—now for other matters.

The surrounding country is in most places of that type which is so characteristic of Gran Chaco, a dead level, clothed with grass one to four feet in height, studded with fan-leaved palms, sometimes thickly, at other times leaving open expanses of considerable extent. On all sides an endless vista of palm-trees, relieved only by an occasional solitary quebracho, a patch of brushwood, or a small stretch of "forest." Of animal life there are scarcely any signs—a Vulture soaring in endless circles far up in the sky, or a Boie's Woodpecker flying from one palm to another, are almost the only indications that life exists. Owing probably in great part to the intense cold, even insects are few in number. Such is the typical Chaco scene. Along the immediate margin of the river, however, there is more variety; there is usually a fringe of dicotyledonous trees, or a band of brushwood, bounding the river-banks, and in these one finds a greater variety of animal life, more especially of birds.

The geological structure of the region is, as in the plain tracts of most river-basins, uninteresting; so far we have found everywhere a coating of alluvium, about 15 feet in thickness, resting upon a structure of extremely fine-grained soft sandstone, below which we have, as yet, not seen anything.

Of the botanical features I am, as yet, owing to the season of the year, in a position to say but little. Most characteristic are the forests of fan-palms and the huge savannah expanses of grass. In the patches of forest one sees considerable variety of trees, in particular a very great development of arborescent *Mimoseæ*. As, however, none of the trees are yet in flower, I am not able to identify many of them. Amongst herbaceous plants *Compositæ* stand eminent

in number of species, while Bromeliaceæ are equally so as regards number of individuals—three epiphytic species of *Tillandsia*, the well-known “Caragnata” being the most abundant.

Of mammals we have encountered very few, probably owing to the extreme slowness of our progress and the terrific din made by our engines, which frightens away all the animals for miles around. *Nyctipithecus trivirgatus*, *Myctes caraya*, *Dicotyles torquatus*, *Lepus (brasiliensis?)*, and a couple of species of *Hesperomys* are all that I have managed to collect. I have seen at a distance *Felis onca*, *F. jaguarondi*, *Hydrochærus capybara* (only close to the mouth of the river), and *Cervus paludosus*. Also close to the river’s mouth we observed tracks of puma, tapir, agouti, and other beasts.

Of Birds I have fortunately encountered greater numbers, having up to the present observed approximately 120 species, of which about 30 are apparently new to the Argentine fauna. I am, in particular, hoping, if we manage to reach Bolivia and its forest regions, to bring up the proportions of Argentine Woodpeckers to the normal number. I have already got five new ones.

I have a considerable number of observations recorded upon various species; and unknown species I take care to describe, lest anything should happen to the collections. I have considerable difficulties to fight against, owing to the utter want of all facilities for collecting and storing. My laboratory and store-room consist of a damp hold, unlighted except by the hatchway, and always with a couple of inches of water in the bilge. The atmosphere is thus saturated with moisture, and proves a terrible enemy to skins and plants. Whenever I am able I take up the skins and give them an airing, and so I hope to be able to bring back at least recognizable remains of them. The plants I saturate with corrosive sublimate.

I had intended to give you abstracts of my notes on some of the species, but find time will not admit; so I reserve everything for a long communication I shall have to make

you on my return. Owing to the very unexpected length of time we are staying here, I shall probably leave at once for Europe on our getting out of the river, except in the very remote contingency of that being before October or November, the season when all the plants are in flower, and which, of course, I must spend up in the Chaco, in order to complete, or rather "make," my collection of Phanerogams.

I find that, so far at least, the Pilcomayo shows nothing to point to its name meaning "Bird-river." For many days together, especially in the lower parts of the river, we have steamed along *without seeing a single bird*. Now, fortunately, things are not so bad—certain spots appearing almost alive with birds—but still there are occasional days on which I encounter very few. When there is practically no collecting to be done, I try to manage a little anatomical work; and am also endeavouring to get together a collection of well-preserved specimens for subsequent microscopical investigation. I wish especially to get a good series of specimens of arthropod eyes, and also photogenic organs, in the former of which I am specially interested. I had hoped that there might turn up a stray species of *Peripatus* or some land-planarians, or some other interesting archaic form, but none have yet appeared. Earthworms are very rare. I have searched for them at each stopping-place, but my efforts were quite unsuccessful until a few days ago, when a small species appeared, of which I have preserved a series of specimens for Mr. Beddard. I mean, if possible, to bring home specimens of those two curious Woodpeckers, *Leuconerpes candidus* and *Colaptes agricola*, preserved in alcohol. I find it a great drawback not knowing which of the more interesting birds are least known, as regards their anatomical features, and made a great mistake not inquiring into this thoroughly before I started. By-the-bye, I shot two Spoonbills with feathered heads and sexually immature, but with the tracheal structure of *Ajaja rosea*.

S.S. 'Bolivia,' Rio Pilcomayo.

Lat. $24^{\circ} 50'$ approx.

Oct. 28th, 1890.

I take this opportunity of writing you a line or two as to my doings, or rather those of the expedition. I wrote you a letter just four months ago, which was sent down by a canoe which started at that time, and which you have, no doubt, received long since. Since the writing of that letter there is little of scientific interest to chronicle. It is in the first place the winter season, and all nature has almost as lifeless an aspect as it has at home during winter. No insects, no plants; even birds are greatly diminished in numbers. As the commission starts *en route* for the Paraguay in an hour or two, I shall merely give you a bare outline of what has taken place. In the first place, we came to a full stop at this point, owing to the almost total drying up of the river, only a tiny rivulet of intensely salt water trickling down the river-bed. We had managed to reach here only by extraordinary exertions, the latter part of the way by means of building dams across the river and waiting till the water accumulated sufficiently to enable us to steam up river for a few miles. We arrived here on the 10th of June last. By this time want of provisions began to be felt, as the vessel had been provisioned for three or four months only. A party of soldiers had been sent down to bring up fresh supplies, but as there were no signs of them, it was resolved to build a canoe and send down a trustworthy person to accelerate matters. This was done, and on June 27th the canoe started under charge of Capt. Leon Zorilla, Page's second in command. This party, as we afterwards heard, got down all right, but Zorilla, finding that a revolution was going on in Buenos Aires, at once made off thither without thinking for a moment of us, or taking any means to send us provisions. As the month of July passed on Page's health began to fail, and on the 20th he started off down river in a canoe with a couple of negro servants, to make his way to Buenos Aires in search of medical treatment. The 'Bolivia' he left under charge of his son, a boy of ten; and

on board we numbered only seven able-bodied men, a force which could, of course, have made practically no resistance in the event of hostile Indians making their appearance. And no sooner had Page left than we became aware that not only were there Indians about, but that they were not afraid to come very close. The night following Page's departure the carpenter had left his tools on his bench close by the boat—several axes, box of nails, &c. In the morning all these and a lot of clothes, which had been hanging out to dry, had disappeared, while a short distance off we found in the soft mud the footprints of heavily-laden Indians. Until the beginning of September matters passed off uneventfully, except that all of us, with one exception, were getting very thin and exceedingly weak, owing to the starvation rations of food. Our lives were, I believe, saved at this period by our being able to kill a considerable number of the large deer, *Cervus paludosus*, upon which we fed for about two months. Upon Sept. 8th our doctor, Luigi Vignoli, an intelligent young Italian, who had been ailing for some time from the after effects of malarial fever, died, a victim to the bad food and to the shocking ill-treatment which he had received. Our already small number was thus still further reduced, and we were all getting into such a condition that we could not expect to last much longer. For a long time I was scarcely able to walk a hundred yards without stopping to rest. Upon Sept. 18th Indians appeared openly—only a dozen of them. They appeared friendly, and we did some little bartering with them. They stayed a couple of days, and promised to come back the next moon, bringing many of their "brothers." However, before that time came we were extricated from all our difficulties, when we had almost lost all hope. For on the morning of Oct. 4th we suddenly were surprised by a bugle-call close at hand, without any warning whatever, and a few minutes later a detachment of Argentine cavalry appeared, who had been sent off to our help, bringing a supply of live bullocks. They brought us a certain amount of news: how Page had died on his way down stream, and that the expedition was consequently at an end;

how Zorilla had behaved; and how everybody down below believed we were dead, different accounts telling how we had been killed by Indians or starved to death, while another rumour gave out that we were all down with scurvy. They brought, however, no news of the outer world. It is nearly a year since I have received any letter whatever from Europe, and I am beginning to feel how unutterably out of date I shall be in everything, especially in things scientific, when I get back to Europe. What would I not give to be able to get even 'Nature' up here every week!

It appeared, from what our rescuers told us, that an expedition of thirty men had started off to relieve us no less than three months before, but that nothing had been heard of them since, and it was supposed that they were all lost.

Our future proceedings are quite uncertain at present. The orders of the rescuing party were, if they found us, to abandon the vessel and take us down to the Paraguay. We induced them, however, to wait some time to see if any communication arrived from the owners of the vessel. In order to communicate with them, a commission of half a dozen men is to start to-day, and it is with them I send this letter. On their return they will either bring us fresh men and provisions, or else instructions to leave the vessel and go down on mule-back. I need not say how devoutly I pray for the former alternative. It was bad enough to have so many hindrances in the way of making decent collections, but to have to lose all these collections, as well as apparatus, books, *everything*, in fact, would be too horrible a climax even to this ill-starred expedition. Of course, the moment the boat is abandoned, there is no question but there will be a grand gathering of Indians for the purpose of general pillage.

For other reasons besides the mere saving of the collections already made, I am most anxious to be in the river for some months longer, as now is the spring-time, and nature is beginning to show signs of wakening after her so profound and untropical winter sleep. During the last few weeks I have been able to do absolutely the first spell of active botan-

izing since I entered the Pilcomayo, for when we came into the river, as you will remember, autumn was well advanced and but few plants were in flower. I will not attempt to give you any account of results so far, as that would be most premature, even if there were time for me to do so. I expect, if we are here for two or three months longer, the botany will present the most points of interest; next to that, perhaps, the birds. Geographically and geologically, results are *nil*.

S.S. "Bolivia,"
Rio Pilcomayo,
Dec. 22nd, 1890.

We are expecting, within a few days, to have again an opportunity of communicating with the outer world, so I take the opportunity to send you these few lines.

I have written to you twice since we entered the Pilcomayo—once in June, and again in October—each giving a summary of our personal experiences up to the date at which it was written. Since the date of the last letter there is but little to chronicle in the way of such experiences. We have remained in one locality during the whole period, there being at present not a drop of water coming down this, the eastern branch of the river. Towards the end of last month, a small and temporary rise in the river gave us, with the help of our dam, sufficient water to float down to our present position, which is merely, however, some $2\frac{1}{2}$ miles in a straight line from our previous position, and in all its biological features is identical with it. We have therefore been in this particular neighbourhood for over six months—the greater part of winter, the whole of spring, and half the summer. Our having to pass the spring-time here was a great disappointment to me, as, owing to the floral poverty of the district, my botanical work was greatly curtailed. We are now patiently awaiting the rising of the river to make our way down stream. Immediately after the close of the expedition I shall return home.

I have mentioned the comparative barrenness of this dis-

trict biologically. This is attributable in great part to its intense dryness. Entirely of very recent formation, the ground consists of a deep layer of light sandy soil, beneath which appears in places a soft and slightly argillaceous sandstone. This pervious nature of the ground, combined with the great heat and the intense dryness of the atmosphere, favours evaporation to an enormous extent. As a consequence the whole soil, except where by thick forest it is protected from such evaporation, is strongly impregnated with salt. Flowing into such a region, the streams of the Andes are, during their passage across the Gran Chaco, to a great extent lost by absorption and evaporation, and in the case of most, where there is any water left in them to reach the Paraguay, it is intensely salt and bitter. During three fourths of the year scarcely a drop of rain falls, so that the scantiness of the flora is by no means to be wondered at.

In its physical appearance the Gran Chaco in this portion is an immense plain like the Pampas of Buenos Aires, or still more the Llanos of the Orinoco, covered with a growth of tall and coarse grass and thickly dotted with fan-palms, in fact a gigantic palm-forest. Only occasionally is the extent of palm-forest varied by a wide open meadow-like expanse without a single tree or shrub, by a park-like stretch of green turf with scattered trees and bushes, or by a comparatively limited patch of dicotyledonous forest. This latter is not forest of the majestic kind met with in Amazonia and other parts of S. America, but is a dense aggregate of small and slender trees some 15 to 20 feet in height, only here and there amongst which shoots up an isolated tree of respectable size. The undergrowth in such forest consists chiefly of spiny Bromeliacæ. Of aroids and ferns and other moisture-loving plants there are few, for all is dry and parched. Such patches of forest occur on ground slightly higher than the surrounding "*palmar*," which latter occupies ground liable to apparently annual inundation, as shown by the marks of flood-level upon the palm-trunks. Bordering the western branch of the river more especially are extensive ranges of what during much of the year forms marsh and swamp; but

at present all these are dried up, and pools of fresh water are very few and far between. This has of course a very marked effect upon flora and fauna, and aquatic species are few in number.

As regards the avifauna, this appears perhaps more strikingly than in any other department, especially when one has the laguna-studded Pampas fresh in one's memory. The Anatidæ, so varied and abundant at Mate Grande, are here few as regards individuals, still fewer as regards species, for practically the only species I have met with here is the "Pato real" (*Cairina moschata*), one or two of which may occasionally be seen roosting on a tree by the river's margin, or feeding by the edge of a little pool of water. Less entirely aquatic in its habits, the Chajá (*Chauna chavaria*) is not infrequent. Of Ibises, *Theristicus caudatus*, with its terrestrial habits, is the only one to be seen at present, although, before the marshes were so completely dried up, *Harpiprion cærulescens* and *Ajaja rosea* were pretty common, while *Plegadis guarauna* has been seen passing overhead in the evenings. Of Storks the Jabiru is the most frequent, but it too has quite disappeared during the last two months. Herons also, earlier in the year so very abundant, are now scarcely seen at all. The ordinary Cormorant (*Phalacrocorax brasilianus*) is the only one of the strictly natatorial birds which is at all abundant at present, and this is no doubt due to its not having the same dislike to salt water that many of its congeners have, for it is constantly to be seen swimming about in the intensely salt water of the river. Of Rails the only one abundant is the Ypecahá, which is frequent both along the river margins and by freshwater pools. I have also lately got another Rail, unknown to me, with beautiful deep blue plumage. I have just seen a single pair of them so far. Water-hens and Coots, teeming in every pool in the Pampas, are entirely absent so far. *Aramus scolopaceus* is not common. The Cariama is frequently heard out in the open, but I have not seen any adult specimen so far. *Parra jacana* was common up till November. *Vanellus cayennensis*, *Ægialitis collaris*, and *Himantopus brasilianus* are all occasional; while several Sandpipers and the two Yellowshanks are pretty

common by the river's margin. Grebes I had collected none of until, the other night, an Indian pointed out to me something in the river close by which I fired at, and it turned out to be a Thick-billed Grebe (*Podilymbus podiceps*), a species I had met with at Mate Grande. Soon after we entered the river I saw a Rolland's Grebe in a laguna, so that up to the present I have met with two species on the Pilcomayo. The other chief family of water-frequenting birds is that of the Kingfishers, of which all three Argentine species were at first abundant. But these birds, like others, have become much less frequent during the long-continued season of drought. During this season, then, perhaps the most striking deficiencies in the avifauna compared with that met with at Mate Grande are the almost entire absence of Ducks, the absence of Coots altogether, and also of Flamingos.

I have been rather surprised to find Woodpeckers in such comparative abundance. This is especially marked as regards individuals, while of species I have collected examples of eleven or twelve, several of which I have been unable to identify. *Dryocopus erythropus* (?) I have met with pretty frequently, and I believe that I have got one or two species of *Chloronerpes*. Up to the present I have ascertained the occurrence of about 152 species of birds upon the banks of the Pilcomayo, and about 27 species of mammalia. The majority of the former I shall endeavour to bring home as skins, but the mammalia I find very difficult to get hold of. Skins of these, however, are of less importance owing to their usually much easier identification. I do not attempt to make out a list of either birds or mammals at present, as of the former there are a considerable number, and of the latter several, especially mice and bats, not yet identified. I am having much difficulty in keeping skins and plants intact, owing to the swarms of cockroaches, beetles, and ants with which the ship is constantly being invaded, as well as the damp and entire want of ventilation of the only place I have for storage of specimens. In my last letter, written in the end of October, I think I confined myself to a narrative of our past experiences, necessarily very brief, owing to the very short time at my disposal, and did not say anything about future movements. We have

now our bows turned down stream, and are at present merely awaiting the rise in the river to float us down to the Paraguay. I am in hopes that we shall be out of the Pilcomayo by the end of February, and I shall at once return to England, with perhaps a week or two's delay in Ascension and Buenos Aires.

XXV.—On a new Finch of the Genus *Pheucticus*, from Guatemala. By OSBERT SALVIN and F. DuCANE GODMAN.

DURING a recent excursion to the slopes of the Volcan de Santa Maria, near Quezaltenango, in Guatemala, Mr. W. B. Richardson obtained two specimens of a Finch of the genus *Pheucticus*. Both of them are in moulting plumage, but the new feathers of the adult are sufficiently developed to show that this bird is quite distinct from its nearest ally, *P. chrysopheplus*, of Western Mexico. The presence of a *Pheucticus* in this district partially fills up a gap in the range of the genus. Hitherto it was supposed to be absent from the wide tract of country lying between Western Mexico and Costa Rica, where *P. tibialis* occurs, but now the highlands of Guatemala must be included in its range.

We propose to characterize this species as follows:—

♂ *PHEUCTICUS AURANTIACUS*, sp. n.

Aurantiacus, alis nigris, speculo alari, remigibus internis et secundariis in pogonio externo ad apicem albis; interscapulio nigro plumis singulis aurantiaco marginatis, uropygio nigro maculato, supracaudalibus nigris albo terminatis; cauda nigra, rectricibus duabus externis in pogonio interno late albo terminatis, tertia ab externa quoque ad apicem alba, tectricibus subalaribus aurantiacis, subcaudalibus albis; rostro nigro, mandibula basi albida.

♂ *jr.* supra multo magis nigro variegatus, plumis capitis et cervicis posticis medialiter nigris, uropygii nigris aurantaco terminatis.

Hab. Volcan de Santa Maria, Guatemala.

Obs. *P. chrysopheplo* proximus et ejusdem staturæ, sed capite toto et corpore omnino subtus magis aurantiacis, interscapulio nigro variegato, et uropygio nigro guttato distinguendus.